ABSTRACT

THESIS: Survival and Space Use of White-tailed Deer (*Odocoileus virginianus*) Fawns in Urban and Rural Southern Indiana

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This study has presented a comprehensive overview of survival and space use of fawn white-tailed deer in urban and rural areas of southern Indiana. Urban populations of white-tailed deer are increasing in many areas throughout their range. Expansion of urban development and residential suburbs provides white-tailed deer with suitable habitat that is conducive to rapid increases in population growth along with increased risk of deer-vehicle collisions, personal property damage, and elevated incidences of zoonotic diseases. In order to determine the similarities and differences between better understood rural populations and expanding urban populations, we conducted research to identify survival probability, cause-specific mortality, and home range sizes for fawn white-tailed deer across an urban-rural gradient. We collared 119 fawns with expandable radio collars, and radio telemetry was used to locate each fawn and determine mortality events. Primary causes of mortality were coyote predation in rural areas and vehicle collisions in urban areas. The overall survival rate for fawns was 0.55 (95% CI = 0.45-0.65). While, survival increased with age, survival of fawns reaching 32 weeks of age decreased from 0.70 (95% CI = 0.55-0.81) in urban areas to 0.44 (95% CI = 0.32-0.57) in rural areas. Survival was strongly correlated with housing density, with the likelihood of reduced predation occurring in more urbanized locations. Additionally, rural home ranges were 73% larger than the most urban home ranges during the first 8 weeks of life, and 50% larger during the first 32 weeks of life. Home range size consistently decreased from rural to urban areas within our study area. This information may help explain the population density differences in urban and rural areas, and help determine which management strategies may be the most effective.